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and

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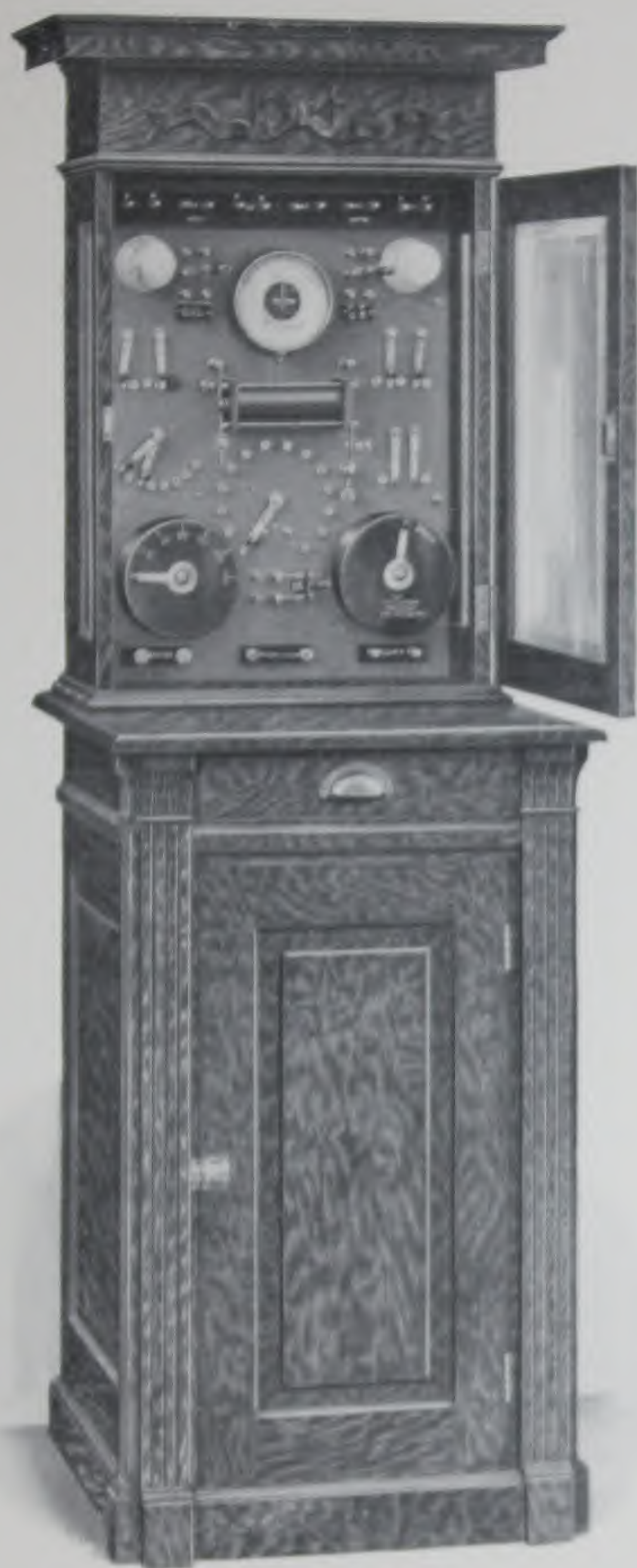
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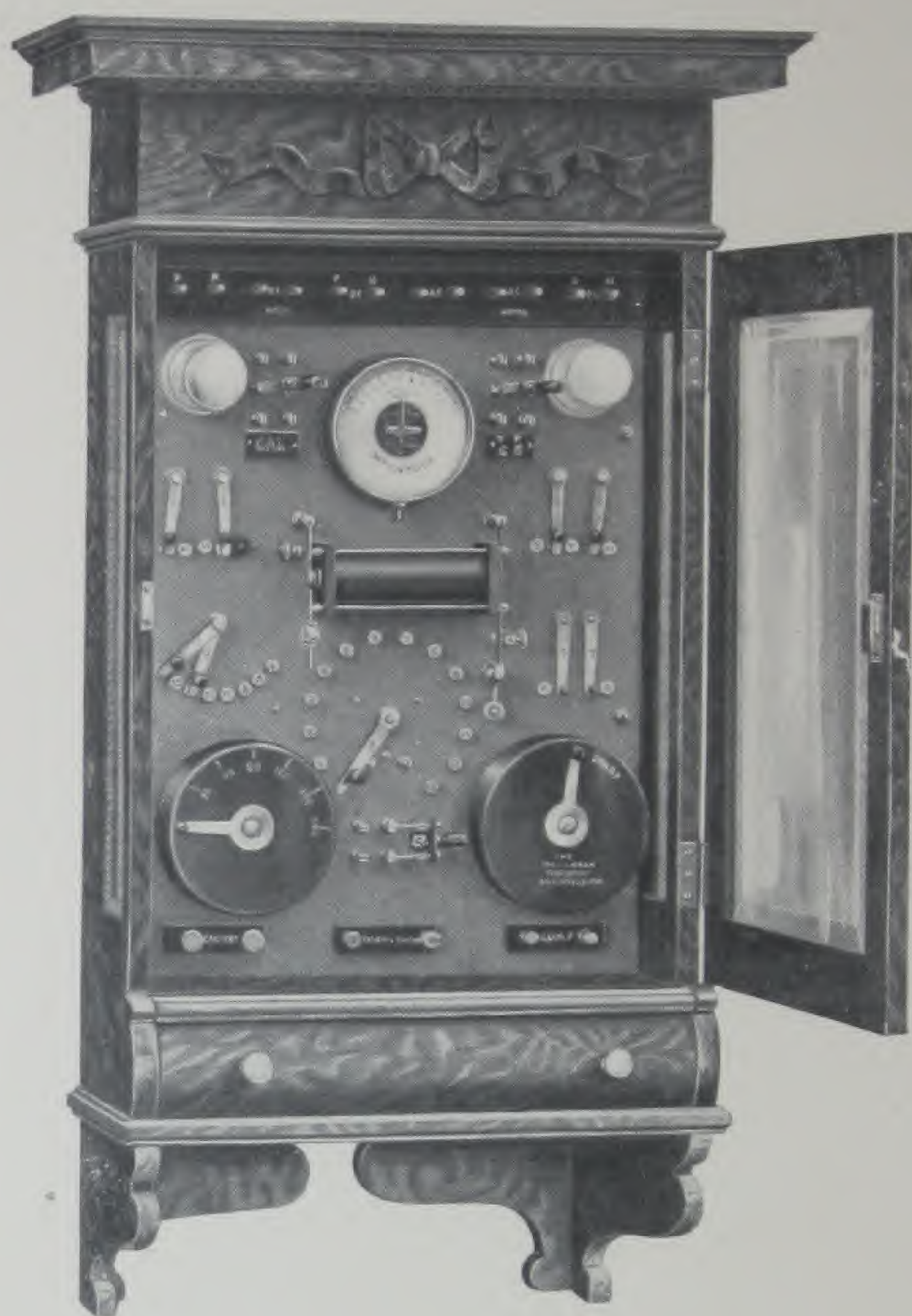
McIntosh Battery & Optical Co.

39 W. Randolph St., Chicago, Ill.



McIntosh Universal Wall Cabinet, No. 8

10 96-86537 7124



McIntosh Combination Wall Cabinet, No. 10

McIntosh Universal Wall Cabinet No. 8.

This apparatus is shown in the illustration toward the front facing cover. It will be found a very popular one with physicians whose offices are supplied with the alternating lighting circuit, as it offers a great variety of effects in connection with that form of energy. The harmonious arrangement of the switchboard combined with the perfect symmetry of the cabinet and the wide range of adaptability and application recommend this outfit to those in search of a complete and up-to-date apparatus.

McIntosh Combination Wall Cabinet No. 10

This outfit embodies the switchboard of the No. 8 outfit, mounted in a more simple form of cabinet arranged to hang upon the wall. Its working capacity is exactly the same as that of the No. 8, although it has no compartment to accommodate any of the accessory features; excepting a drawer for electrodes and a small space for the faradic cells in the rear at the top. A motor generator, motor dynamo or rectifier, when employed, may be located on a shelf which can be placed just below the cabinet. If cells are to be utilized for the Galvanic circuit they can be kept on a tier of shelves or in an adjoining closet.

The Especial Advantages possessed by the above outfits are outlined as follows:

1. A universal method of connections enables operation in connection with either direct or alternating circuit without any change in wiring; simply making connections with the binding-posts indicated.
2. Special provision for the operation of either motor generator, motor dynamo, or rectifier from the switchboard, without necessitating the installation of knife switches at outside points.
3. The cautery transformer is operable on an alternating lighting circuit, or by means of a motor generator, in connection with a direct circuit.
4. The Current Combiner Switch is a most simple device, affording a great variety of effects, and lacking the complicated features usually present in this form of switch.
5. The special diagnostic lamp circuit permits the operator to use electrically lighted instruments simultaneously with Galvanic applications if desired.
6. The McIntosh Monomotive Rheotome is a new departure along this line, offering a wide range of effects with a minimum of care and attention.
7. The MacLagan Wire Rheostat has no superior as a controller of delicate therapeutic currents; having a large carrying capacity it is suitable for diagnostic lamps as well.

PRIME FEATURES.

The MacLagan Wire Rheostat is a perfect current controller of wire resistance and is constructed according to a unique method, assuring gradations of perfect evenness; permitting the administration of very delicate currents or rather powerful dosages with absolute immunity from shock or unpleasant sensation. It is connected permanently in the Galvanic, Faradic and Sinusoidal circuits and controls these currents in all varieties and combinations. The rheostat is wired in shunt insuring perfect safety in the employment of commercial currents and has a carrying capacity of $\frac{1}{2}$ ampere; affording the operator the full range of the milliamperemeter scale, 400 milliamperes.

The McIntosh Shunt Milliamperemeter, a most accurate and sensitive instrument, has a double scale, the lower or black scale reading 0 to 400 milliamperes and being especially suitable for the registration of large currents as in gynecology and is always in circuit when the hard rubber plug is in its socket: the red or upper scale reading 0 to 20 milliamperes is particularly adaptable to the measurement of comparatively small currents, such as are used in Electrolysis and other light galvanic applications and is placed in circuit by removing the hard rubber plug from its socket. The dial may be adjusted to zero when the needle is at rest, by a forward or backward movement of the nickel plated knob just above the shunt plug. The meter is readily placed in or out of circuit by means of switch No. 1.

The McIntosh Monomotive Rheotome is a clock-work mechanism, permitting of the introduction of various rates of interruption into any therapeutic circuit, such as Galvanic, Faradic or Sinusoidal. A special advantage of this particular instrument as compared with other rheotomes is indicated in the name "Monomotive" signifying *one motion*; that is, one motion of the lever starts the mechanism, turns on the current and selects the frequency of interruption. The ease of manipulation of this instrument makes it superior to all others on the market and the operator will readily appreciate its many points of advantage. The rates of interruption available are those most frequently required: namely, 20, 40, 80, 120, 200 and 400 per minute. The spring affording the motive power is wound up in the same manner as a clock, a key being furnished for the purpose.

The especial field of usefulness of this instrument is in connection with the Galvanic current—particularly in electro-diagnosis, where an interrupted Galvanic current is considered more efficacious than a Faradic current in bringing a response from an atrophied muscle. When used in connection with the Sinusoidal current the effect is most pleasing and it makes a desirable form of massage application.

The High Tension Faradic Coil contains a primary winding of 230 feet of No. 20 wire and a secondary of 4500 feet of No. 36 wire, the latter being tapped at 1500 feet and 3000 feet and connected with a selective switch. This apparatus is fitted with two vibrators; one, a slow vibrator with adjustable weight offering quite a range of slow interruptions; and one, a rapid vibrator or "Singing Rheotome" affording a wide scope of rapid vibrations, the tension being varied by means of a hinged elbow.

PRIME FEATURES.

The Cautery Transformer is indicated by the large circle of buttons and is designed to be operated in connection with an alternating lighting circuit of 55 or 110 volts; and is so connected with the Transformer switch, No. 2, that the connections may be readily altered to suit either 55 or 110 volt circuit, by unscrewing the hard-rubber disc and placing it upon the button *not to be used*: thus, if the 110 volt circuit is available the hard-rubber disc should be placed upon the 55 volt button and fastened permanently with a screw, so that only the 110 volt button will be exposed.

With the 110 volt direct current a small motor generator is utilized to furnish alternating current for the Cautery Transformer and when a very small type of motor is used, such as 1-6 H. P., the best satisfaction will be obtained by using the 110 volt winding of the Transformer; but if a larger motor generator is at hand, such as a $\frac{1}{4}$ H. P., a much larger volume of cautery current can be obtained by using the 55 volt section.

The Transformer affords a powerful cautery current which is kept under perfect control by means of the switch.

The Special Diagnostic Lamp Circuit embraces the right-hand frosted lamp which carries exactly $\frac{1}{4}$ ampere or 250 milliamperes, together with switch No. 6, enabling it to be placed in series with the "Illuminator" binding posts. The amount of amperage obtainable at these binding posts is therefore 250 milliamperes, no more or less, and may be employed to illuminate such diagnostic lamps as carry precisely this amount of current. The frosted lamp is selected upon a definite rating and should never be replaced except by one of its exact carrying capacity: nor should it be confused with the resistance lamp, which it greatly resembles.

The Resistance Lamp, the one at the left hand, is of the ordinary 16 C.P. round bulb, frosted type and carries approximately $\frac{1}{2}$ ampere. It is wired in series with the "DC" binding posts and is in series with the rheostat when these posts are made use of. The lamp does not become illuminated when the Galvanic current is in use, unless sufficient current is passed through the patient's binding posts or through the patient, to cause it to be illuminated; and considering that at least 200 or 300 milliamperes are required to light the lamp even very dimly, it will be appreciated that in ordinary applications it will not glow.

The Switch-Board, a plate of highly-polished, brown Tennessee marble, measuring 18x24 inches, serves as a mounting for the various instruments, displaying the accessories in harmonious combination and facilitating ready operation of the switches.

The Cabinet-Work is built of selected, kiln-dried, quarter-sawed oak, rubbed to a brilliant polish, in the popular dark, golden color. It is embellished with artistic carvings and hardware of neat design, and the side lights and beveled plate glass in door serve to display the switchboard to best advantage. The outside measurements of the No. 10 Cabinet are 44x25x14 inches. This cabinet has a drawer for electrodes and a shelf at the top for four dry cells. The No. 8 Cabinet measures 70 inches in height, 25 inches in width and 24 inches in total depth. The lower compartment contains a drawer for electrodes and a closet capable of accommodating the Rectifier, Motor Dynamo, Motor Generator or forty National No. 7, or Columbia No. 6 cells.

The Accessories provided with the outfit consist of one pair of conducting cords and one pair of No. 1 Universal wooden handles with sponge covered discs, together with four No. 6 Columbia dry cells for the Faradic coil. The necessary attachment plug and wire for making connections as well as full instructions for operating, accompany each outfit.

SWITCHES.

No. 1 Milliamperemeter Switch; places the meter in or out of circuit; when using the Sinusoidal current or lighting diagnostic lamps, it is advisable to remove the meter from circuit.

No. 2 Cautery Transformer Switch; removes the Cautery Transformer completely from circuit, or allows of the selection of either 55 or 110 volt section.

Nos. 3 and 4 Current Combiner Switch; when placed upon buttons "SS" and "SS" the Sinusoidal current is obtained; on buttons "G" and "GP" the Galvanic current is secured; with "GP" and "PS" the primary Faradic current is derived; with "PS" and "S1500" the first section of the secondary coil is obtained; with "PS" and "S4500" the entire winding of the High Tension Coil is placed in circuit; when placed on buttons "G" and "PS" the Galvanic and Primary Faradic currents are combined; on buttons "GP" and "S1500" the primary and secondary currents are combined; on "GP" and "S4500" the primary and high tension Faradic currents are combined; with "G" and "S4500" the entire combination of Galvanic, Primary and High Tension Faradic currents is afforded.

No. 5 Faradic Vibrator Switch; when thrown on button "S" the slow vibrator is placed in action and when placed on button "F" the fast vibrator or rapid interrupter is brought into circuit.

No. 6 Diagnostic Lamp Switch; when thrown on button "L" the frosted lamp of the Diagnostic lamp circuit is illuminated; when placed on button "DL" the current is directed to the "Illuminator" binding posts.

No. 7 Interchangeable Switch; when the 110 volt direct current is used as a source of energy, both levers should be placed on buttons marked "D" and permanently secured with screws; when the alternating current of 110 volts is employed the levers should be placed on buttons "A" and retained permanently.

The Pole Changer Switch is stamped with an index finger and the word "Positive" and when thrown to the contacts at the right hand it creates positive polarity in the right-hand patient's binding post, while the left-hand post becomes correspondingly negative; when thrown to the left this polarity is reversed.

The D C Knife Switch is the one at the upper left-hand; when thrown to the lower contacts to the word "Galvanic" it closes this circuit turning on the source of energy available; or when thrown to the upper contact posts it starts in action the small Motor Generator employed for the purpose of affording alternating current and should always be open when the apparatus is not in operation.

The A C Knife Switch, at the upper right-hand, controls the alternating currents entering the plate; when thrown to the lower contacts it connects the Cautery Transformer and Sinusoidal circuit; or when thrown to the upper contacts it starts in action the Motor Dynamo or Rectifier employed to produce direct current; and should always be open when not in use.

BINDING POSTS FOR CONNECTION.

"GC"—For attachment of Galvanic cells, when employed.

"DCMotor"—For the connection of a direct current motor generator, converting direct to alternating.

"DC"—For connection with main wires of the 110 volt direct lighting circuit; or a small direct current generator.

"AC"—For connection with the alternating current mains; or a small motor generator.

"AC Motor"—For connection of a rectifier or alternating current motor dynamo to transform alternating to direct.

"FC"—For attachment of four dry cells for the Faradic coil.

BINDING POSTS FOR OPERATION.

The "Cautery" Binding Posts, indicated by proper marking are those intended for connection of the Cautery cords or for Diagnostic Lamp.

The "Patient's Circuit" Binding Posts are for the administration of the therapeutic currents, such as Galvanic, Galvano-Faradic, Faradic and Sinusoidal, and for Diagnostic Lamps when energized by the Galvanic circuit.

The "Illuminator" Binding Posts are those connected with the special Diagnostic Lamp circuit.

METHODS OF OPERATING.

The Galvanic Circuit of this apparatus requires connection with a source of energy furnishing a direct or continuous current; hence must be operated in connection with a direct dynamo current or a circuit having a continuous polarity: or may be energized by a battery of cells.

The Faradic Circuit is designed to be energized by four dry cells which accompany the outfit, and the reasons for using this form of energy are manifold. The feature of combined Galvanic and Faradic currents offered by the switchboard demands a separate source of energy for the Faradic coil, and this is most conveniently fulfilled in the above manner. A High Tension Coil induces a very high potential and it is most advantageous to energize it with battery power instead of using a high-voltage commercial circuit which would tend to produce such an enormous voltage in the coil that it would be disagreeable to the patient; by the use of a low voltage battery force of six volts all arcing at the vibrator points is done away with, thus assuring a steady even wave.

The Cautery and Sinusoidal Circuits demand an alternating dynamo current as a source of power and therefore are adaptable to connection with the commercial alternating lighting circuit or any alternating dynamo current available.

The Special Diagnostic Lamp Circuit requires as a source of energy a commercial circuit of 110 volts, either direct or alternating; and may be placed in connection with either of these forms of lighting current, when available, by means of the interchangeable switch, No. 7, provided for that purpose.

SOURCES OF ENERGY.

The 110 Volt Direct Current, when accessible, is adaptable to the needs of the Galvanic circuit and Diagnostic lamp circuit; while it may be converted to an alternating current by means of a small motor generator, and thus made applicable to the Cautery and Sinusoidal circuits.

The 110 Volt Alternating Current, when available, may be employed to energize the Cautery, Sinusoidal and Diagnostic Lamp circuits; while a rectifier or motor dynamo outfit may be employed to transform the alternating current to direct, thus making it adaptable to the Galvanic circuit.

Both Direct and Alternating Currents, when available in the same office, may be attached to the respective circuits and the apparatus thus operated without transformer of any kind.

A Battery of Cells may be employed to energize the Galvanic circuit in cases where it is desirable, utilizing 40 National No. 7 liquid chloride of ammonium or the same number of No. 6 Columbia dry cells. The practitioner whose office is supplied with the alternating circuit, but who has no day current, may find it convenient to employ a battery of cells for Galvanism and Faradism during the day time: making use of the alternating current for Cautery and Sinusoidal effects during the evening.

Connecting with a Battery of Cells.

When a battery of forty cells, either dry or liquid, is to be employed for the purpose of operating the Galvanic circuit, the cells are connected in series, i. e., zinc to carbon throughout the entire chain, and a wire should be connected to the carbon of the first cell and a wire attached to the zinc of the 40th cell; leading these wires upward and making connection to the posts marked "GC" connecting the carbon with post "P" and the zinc with post "N."

Connecting with the 110 Volt Direct Current

The attachment plug accompanying the outfit should be screwed into a convenient lamp socket and the tips of the cords immersed in a glass of water, being careful to hold them apart so as to avoid a short circuit; and the negative pole will be indicated by a profusion of fine bubbles. These cords after having been marked for polarity are brought downward through the holes in the top of the cabinet and attached to binding posts "DC" according to polarity. The small motor generator, to be employed for the purpose of converting direct current to alternating, is placed in its permanent location and two wires led from binding posts marked "DC Motor" and attached to the direct current posts on motor, those usually facing the commutator. Another pair of wires may be attached to the alternating current posts on motor, those usually facing the collecting rings and brought upward and connected to the binding posts on plate marked "AC" (not "AC Motor.")

The four dry cells supplied for the purpose of operating the Faradic coil are to be connected in series, i. e., with a wire connecting the zinc of the first cell with the carbon of the second,—the zinc of the second cell with the carbon of the third,—the zinc of the third cell with the carbon of the fourth; and a wire should be brought from the carbon of the first cell and one from the zinc of the fourth cell; leading these wires upward and then through the holes in the top of the cabinet and finally making connection with the binding posts marked "FC;" attaching the wire from the carbon to the post marked "P" and that from the zinc to the post marked "N".

It is important to see that the interchangeable switch is placed upon buttons "D" and that the "110" button of the transformer switch is exposed; the resistance lamps should also be examined to see that they are firmly screwed into their sockets.

Connecting with the 110 Volt Alternating Current.

The attachment plug is affixed to a nearby lamp socket and the cords brought through the holes in the top of the cabinet and connected to the posts marked "AC" it being irrespective which cord is attached to either post as there is no polarity to be taken into account.

A Rectifier, if employed for the purpose of converting alternating to direct, should be located in its proper place and two wires led from the posts on plate marked "AC Motor"; and attached to the posts on Rectifier marked "AC Line;" two additional wires are next attached to the posts on Rectifier marked "DC;" and led upward to the plate and attached to the posts marked "GC" observing carefully the proper poles. Our Rectifier is supplied with a series lamp which reduces the voltage of the rectified current to about 80 volts: and therefore, it is preferable to apply this current to the binding posts intended for cells, rather than to connect to the regular "DC" binding posts which are wired with a lamp in series: as the latter form of connection would bring too much lamp resistance into circuit. The Knife Switch on the rectifier may be permanently closed as the A C Knife Switch on the plate controls this circuit.

A Motor Dynamo Outfit, when utilized to convert alternating to direct, may be energized by the supply current from the binding posts marked "AC-Motor," running two wires for this purpose; while the direct current generator of this device is connected to the binding posts marked "DC" by means of suitable wires: determining the polarity as with the 110 volt direct lighting current. Most of the generating sets in use afford a voltage of 110, and a current of this voltage should be connected with the "DC" posts so as to bring the resistance lamp properly into circuit; but in the case of small generators which offer a current having a voltage of about 70 or 80, the wires should be attached to the "GC" posts so that no resistance lamp will intervene.

The cells to be employed for the operation of the Faradic coil should be connected up in proper manner and due attention given to see that the interchangeable switch is placed upon the "A" buttons and that the transformer switch is arranged with button "110" exposed.

MODALITIES AVAILABLE.

The Galvanic Current is obtained by throwing the left-hand or Direct Current Knife Switch to the lower contact posts, so as to connect with the the source of energy. If a Rectifier or Motor Dynamo outfit is operated in connection with the outfit, the AC Knife Switch should first be thrown to the upper contacts, so as to place same in operation. The levers of the Current Combiner Switch, Nos. 3 and 4, are next placed on buttons "G" and "GP" and the Pole Changer Switch is closed; that is, thrown into contact on either right or left hand side: the polarity of the patient's binding posts being carefully observed. If it is desired to use the Milliamperemeter, switch No. 1 may be placed on button "M" and the proper scale of the meter selected by means of the hard rubber plug. All things being in readiness and the electrodes in contact with the patient, the lever of the Rheostat is revolved clock-wise until the required dosage is obtained.

When making a test it is advisable to place the sponge electrodes upon sensitive, tender skin, such as the skin of the arms or neck; as the thick skin in the palms of the hands offers great resistance to the passage of the current and does not present a field for a satisfactory trial. The resistance of the body measured from hand to hand ranges from 5000 to 10,000 ohms and it is best not to make application at these points when demonstrating the working capabilities of the outfit. It is well to avoid making a test on a complete short-circuit, especially when the energy is supplied by a battery of cells; if the patient's binding-posts are short-circuited by means of a conducting cord, the lever of the rheostat should never be advanced more than half way, as a dead short-circuit has a tendency to pass too great a volume of current through the meter and rheostat.

The range of application of this current is most comprehensive, varying from most delicate operations in Electrolysis, Epilation, Eye Work, etc., to the larger currents used in such applications as Rectal, Treatment and Genito-Urinary work, and the much more powerful currents of Gynecology. The intensity of current is kept under full control by means of the rheostat, so that a mild or powerful current may be administered with entire absence of shock or disagreeable sensation.

The Interrupted Galvanic Current is afforded by following the arrangement of switches for the Galvanic current as outlined above, placing the Monomotive Rheotome in circuit by advancing the lever to the figure representing the frequency of interruptions desired. This current is especially suitable for use in electro-diagnosis, where it is employed for its contractile effects.

The Primary Faradic Current is secured by first placing the coil in operation by throwing the Faradic vibrator switch, No. 5, to "S" or "F" according to whether it is desired to use the slow or fast vibrator; while the levers of the Current Combiner switch, Nos. 3 and 4, are placed upon buttons "GP" and "PS;" the Pole Changer Switch should be pressed firmly into contact, so as to complete the circuit, and the volume of current regulated by means of the rheostat. The current from the Primary Coil when used in conjunction with the slow vibrator makes a most excellent modality for muscular contraction and massage effects.

The High Tension Faradic Current, properly speaking, is that derived from the secondary winding of the coil and is brought into circuit by placing the levers of the Current Combiner Switch on buttons "PS" and "S4500;" with this position of switches the entire winding of 4500 feet of No. 36 wire is brought into play. A smaller section of the coil can be utilized by placing, the levers on buttons "PS" and "S1500" thus affording but one section or 1500, feet of secondary; with switch levers on buttons "PS" and "S3000," two-thirds of the secondary winding or 3000 feet are obtained.

MODALITIES AVAILABLE.

(The High Tension Faradic Current, continued.)

The peculiarity of sensation of the High Tension Faradic Current is most remarkable, inasmuch as the greater the length of wire the milder the sensation experienced by the patient, owing to the enormous potential or electro-motive force which is developed by the entire winding and which easily overcomes the resistance of the patient, thus giving rise to very little of sensory effect. The special field of application of the High Tension Faradic Current is in connection with the rapid vibrator for producing local anaesthesia.

The Combined Primary and Secondary Current is placed at disposal by following the general directions for the Faradic coil and by setting the levers of the Current Combiner Switch, Nos. 3 and 4 on buttons "GP" and "S1500" preferably. The combination afforded by thus using the Primary Coil and one section of the Secondary is the most desirable one of this method, because a much more satisfactory current is obtained with only a portion of the Secondary in conjunction with the Primary. This current will find its votaries among those who differentiate very closely between the various forms and modes of Faradic currents.

The Combined Galvanic and Faradic Current, is secured by following the general directions for both Galvanic and Faradic currents. The left-hand or Direct Current Knife Switch should be thrown to the "Galvanic" contact posts; while the milliamperemeter switch is placed on button "M," giving due attention to the particular scale of the meter to be used; while the pole-changer is pressed firmly into contact: the Faradic vibrator switch, No. 5, is placed preferably on button "F" and the levers of the Current Combiner Switch are placed on buttons "G" and "S1500," or, if it may be desired lever 4 may be placed on button "S3000" or "S4500." It will be found in actual practice that the most valuable current is obtained by following the first named arrangement of switches which affords the combination of Galvanic, Primary and first section of Secondary. The intensity of current is controlled by means of the rheostat which regulates the volume both of Galvanic and Faradic, the Galvanic portion being measured by the meter.

This current is employed largely in Gynecology, chiefly for the anaesthetic effect of the Faradic current which removes the painful sensation of a heavy Galvanic current.

The Sinusoidal Current, is in reality an alternating dynamo current adapted to therapeutic use. The right-hand or A C Knife Switch controls the Sinusoidal circuit and must be thrown to the lower contact posts in order to complete the circuit, and the Transformer Switch, No. 2, should remain on the "Off" button. If a small motor generator is to be used to convert direct to alternating current, this appliance is at the first started in motion by throwing the D C Knife Switch to the upper contact posts marked "DC Motor." The Sinusoidal current is selected at the patient's binding posts by means of the Current Combiner Switch, Nos. 3 and 4, which is placed upon buttons "SS" and "SS," while the Milliamperemeter Switch, preferably, should be on button "Off" and the Pole Changer Switch pressed firmly into contact either to the right or left. The volume of current delivered to the patient is then regulated by means of the rheostat.

The peculiar physiological feature of the Sinusoidal current is, that the rise and fall of potential of its waves is less abrupt than that of the current developed by a Faradic apparatus, with, consequently, a more pleasant effect upon the sensory nerves. This current is peculiarly adapted to producing muscular contraction and for massage, owing to the very pleasant effects attendant upon its use. This current, if desired, may be passed through the Monomotive Rheotome and re-interrupted and the result is a most desirable form of massage application.

MODALITIES AVAILABLE.

The Cautery Current is obtained from the Cautery Transformer and is regulated to great nicety by the lever of the large switch operating on the circle of buttons reading from "1" to "13." With careful attention the most delicate cautery point can be brought to full incandescence without danger of burning out. When the alternating lighting circuit is employed it is only necessary to turn on the transformer switch No. 2, and to close the cautery circuit by means of the A C Knife Switch, which should be thrown to the lower contact posts; but when the direct current is employed as a source of power, it is first needful to start the small motor generator by throwing the D C Knife Switch to the "D C-Motor" posts. When using cautery current heavy cautery cords made expressly for this purpose are employed, because the large volume of current utilized could not find outlet through the ordinary light conducting cords, used for Galvanic, Faradic and Sinusoidal currents. Connection of cautery cords should be made to binding posts marked "Cautery."

The Diagnostic Lamp Current is obtained from the Special Diagnostic Lamp Circuit and has an unvarying capacity of 250 milliamperes, no more or less, and is suited to the illumination of certain lamps, which require exactly this amount of current, such as the McIntosh No. 124 Holder and Lamp. The switch, No. 6, should be placed on button "DL" and the conducting cords attached to the binding posts marked "Illuminator."

Diagnostic Lamps of many varieties may be illuminated by means of the Galvanic current by following the general arrangement of switches for this current and connecting the cords to the patient's binding posts, controlling the current very carefully by means of the rheostat. With some lamps it is to advantage to use the milliamperemeter in connection, especially if the current rating is known; for example, a lamp consuming 200 milliamperes may be illuminated to full brilliancy without any danger of burning out, by following the indication of the meter.

The commercial alternating lighting current, when available in the office, can be utilized to light diagnostic lamps by employing it in the method of a Sinusoidal current, observing the arrangement of switches for this particular modality and connecting with the patient's binding posts. Where this current is available it is desirable to use it in its original form rather than to pass it through a converting device, because the initial current is of a more steady character.

SUGGESTIONS.

Make it a point to keep the large knife switches open when the apparatus is at rest.

When using the Galvanic circuit do not allow the Sinusoidal circuit to become closed, or vice-versa; but keep all inactive switches turned off.

When running a motor generator or rotary converter, always start the motor before closing the circuit for therapeutic current.

While operating the Cautery Transformer do not allow the Transformer switch, No. 2 or the A C Knife switch to stand closed half way; but throw them "on" or "off" with a quick, decisive movement so as to prevent arcing.

The Pole-Changer directs all currents which are obtained through the Patient's Binding Posts and must be closed in order to complete the circuit.

The Frosted lamps, although quite similar in appearance, should not be interchanged as they differ widely in carrying capacity: renewals of these had best be obtained of us.

When employing light Galvanic currents, ranging, say, from 1 to 20 M. A., always remove the hard rubber plug from its socket so as to make use of the upper or red scale of the meter, as the lower or black scale is not suited to the measuring of small dosages.

LIST OF OUTFITS.

Outfit No. 21. 110 Volt Direct Current.

McIntosh Universal Wall Cabinet, No. 8.....	\$120.00
Motor Generator, 1-6 H. P., 110 V., D. C.....	80.00
Practitioner's Electrode Set, No. 3.....	10.00
Climax Cautey-Illuminator Set, No. 7.....	5.00
Total.....	165.00

Outfit No. 22. 110 Volt Alternating Current, 60, 125 or 133 Cycles

McIntosh Universal Wall Cabinet, No. 8.....	\$120.00
McIntosh Alternating Current Rectifier.....	15.00
Therapeutist's Assortment, No. 5.....	15.00
Perfection Cautey Illuminator Set, No. 6.....	10.00
Total.....	\$160.00

Outfit No. 23. 110 Volt Alternating Current, 60 Cycles.

McIntosh Universal Wall Cabinet, No. 8.....	\$120.00
Motor Dynamo, 110 V., A. C., 60 Cycles.....	90.00
Therapeutist's Assortments, No. 5.....	15.00
Perfection Cautey-Illuminator Set, No. 6.....	10.00
Total.....	\$235.00

Outfit No. 24. 110 Volt Alternating Current, 125 or 133 Cycles

McIntosh Universal Wall Cabinet, No. 8.....	\$120.00
Motor Dynamo, 110 V., A. C., 125 or 133 Cycles.....	105.00
Therapeutist's Assortments, No. 5.....	15.00
Perfection Cautey-Illuminator Set, No. 6.....	10.00
Total.....	\$250.00

Outfit No. 25. Alternating Current and Cells.

McIntosh Universal Wall Cabinet, No. 8.....	\$120.00
40 National No. 7 Chloride of Ammonium Liquid Cells.....	12.00
Practitioner's Electrode Set, No. 3.....	10.00
Climax Cautey-Illuminator Set, No. 7.....	5.00
Total.....	\$147.00

Outfit No. 26. 110 Volt Direct Current.

McIntosh Combination Wall Cabinet, No. 10.....	\$100.00
Motor Generator, 1-6 H. P., 110 V., D. C.....	30.00
Practitioner's Electrode Set, No. 3.....	10.00
Climax Cautey-Illuminator Set, No. 7.....	5.00
Total.....	\$145.00

Outfit No. 27. 110 Volt Alternating Current, 60, 125 or 133 Cycles.

McIntosh Combination Wall Cabinet, No. 10.....	\$100.00
McIntosh Alternating Current Rectifier.....	15.00
Therapeutist's Assortment, No. 5.....	15.00
Perfection Cautey-Illuminator Set, No. 6.....	10.00
Total.....	140.00

Outfit No. 28. 110 Volt Alternating Current, 60 Cycles.

McIntosh Combination Wall Cabinet, No. 10.....	\$100.00
Motor Dynamo, 110 V., A. C., 60 Cycles.....	90.00
Therapeutist's Assortment, No. 5.....	15.00
Perfection Cautey-Illuminator Set, No. 6.....	10.00
Total.....	215.00

Outfit No. 29. 110 Volt Alternating Current 125 or 133 Cycles

McIntosh Combination Wall Cabinet, No. 10.....	\$100.00
Motor Dynamo, 110 V., A. C., 125 or 133 Cycles.....	105.00
Therapeutist's Assortment, No. 5.....	15.00
Perfection Cautey-Illuminator Set, No. 6.....	10.00
Total.....	230.00

Outfit No. 30. Alternating Current and Cells.

McIntosh Combination Wall Cabinet, No. 10.....	\$100.00
40 National No. 7 Chloride of Ammonium Liquid Cells.....	12.00
Practitioner's Electrode Set, No. 3.....	10.00
Climax Cautey-Illuminator Set, No. 7.....	5.00
Total.....	127.00

THE PRACTITIONER'S ELECTRODE SET No. 3.

1 No. 118 Goldspector's Copper Ball Vaginal Electrode.....	\$.75
1 No. 31 Hard Rubber Insulated Urethral Electrode.....	.50
1 No. 76 Set (12) Assorted Wires for above.....	1.50
1 No. 55A Copper Rectal Electrode.....	1.00
1 Set (4) No. 119 Goldspector's Copper Intra-Uterine Electrodes.....	3.00
1 No. 68 Insulated Current Vaginal Electrode.....	1.25
1 No. 66 Hayes' Spongio Porous Abdominal Electrode.....	1.25
1 No. 3 Hand Spongio Electrode.....	.50
1 No. 107 Hard Rubber Needle Holder.....	.75
6 Hayes' Ballpoint Pencil Sharp Needles.....	.60
1 "E" Universal Electrode Connector.....	.10

Price, Complete, in Handsome Leatherette Case, - \$10.00

THERAPIST'S ASSORTMENT, No. 5.

1 No. 14 Insulated Tongue Plate, copper.....	.50
1 No. 57 Small Spongio-Marginal Eye Electrode, copper.....	.50
1 No. 64 Small Spongio, copper.....	.75
1 No. 108 Caspary's Regular Needle Electrode.....	1.00
1 No. 51 Interrupting Switch.....	.50
1 No. 25 Dry, Battery.....	.20
1 No. 115 Goldspector's Copper Ball Vaginal Electrode.....	.75
1 No. 55A Copper Rectal Electrode.....	1.00
1 Set (4) 119 Goldspector's Copper Intra-Uterine Electrodes.....	3.00
1 No. 31 Hard Rubber Insulated Urethral Electrode.....	.50
1 Set No. 76 (12) Assorted Wires for above.....	1.50
1 No. 66 Hayes' Abdominal Electrode.....	1.25
1 No. 107-A Needle Holder with magnifying glass.....	1.50
6 Hayes' Ballpoint Pencil Sharp Needles.....	.60
1 No. 56 State Shock Electrode.....	.75
1 No. 11 Massage Roller.....	1.00
1 No. 3 Hand Spongio Electrode.....	.50
1 "E" Universal Electrode Connector.....	.10

Price, Complete, in Handsome Leatherette Case, - \$15.00

PERFECTION CAUTERY-ILLUMINATOR SET, No. 6.

1 Universal Metallic Cautery Handle, complete, with wheel, candle and stand.....	4.50
1 Pair Heavy Cautery Cords.....	1.25
3 Cautery Electrodes, assorted (to suit purchaser).....	1.80
1 No. 124 Universal Holder and Lamp, including set of three Speculums....	3.00
1 Pair Twisted Cords for Illuminator.....	.50

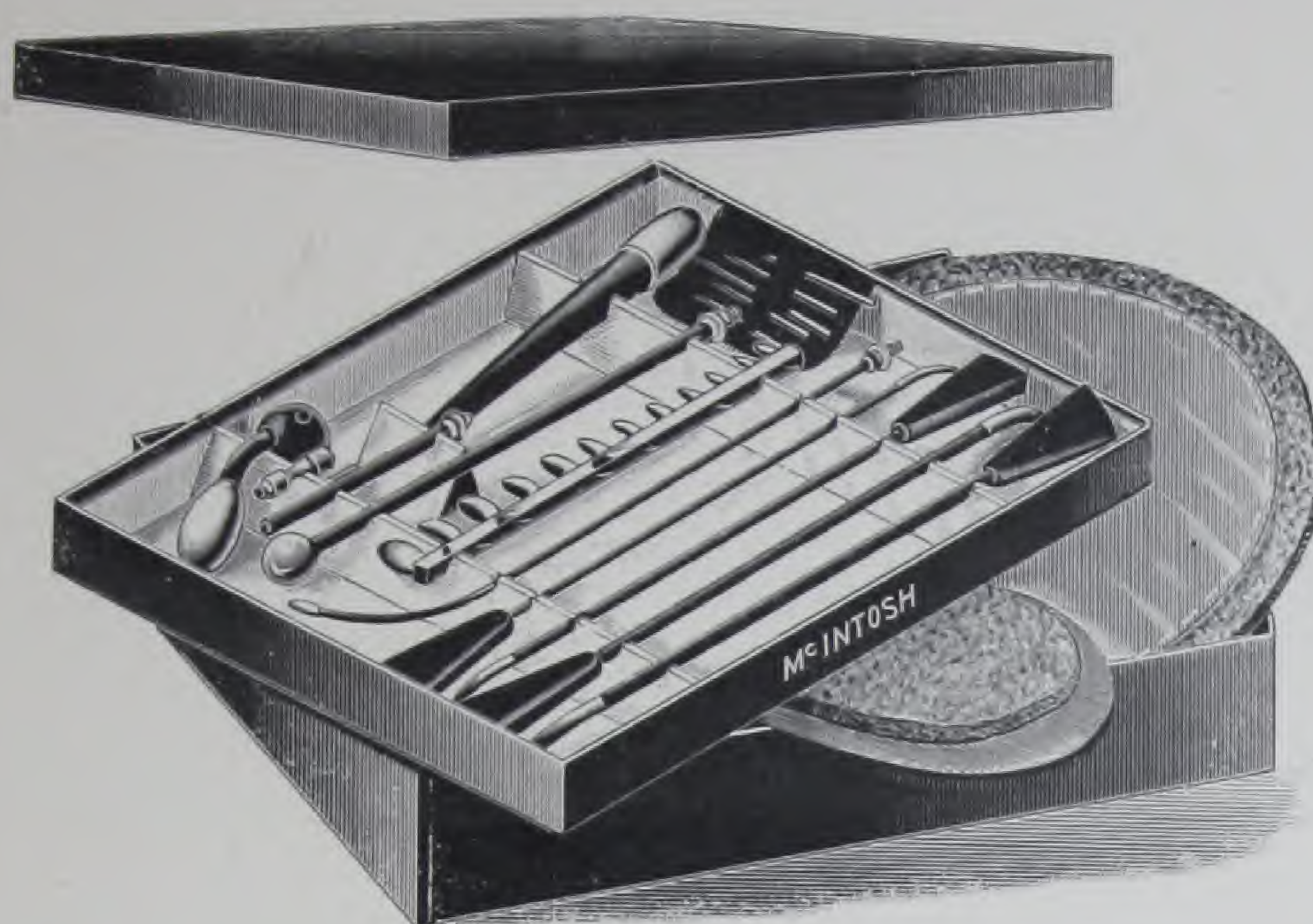
Price, Complete, in Handsome Leatherette Case, - \$10.00

CLIMAX CAUTERY-ILLUMINATOR SET, No. 7.

1 Fibre Cautery Handle.....	1.25
1 Pair of heavy Cautery Cords.....	1.25
3 Cautery Electrodes, as selected.....	1.20
1 No. 124 Universal Holder and Lamp.....	1.50

Price, Complete, in Handsome Leatherette Case, - \$5.00

Practitioner's Electrode Set, No. 3



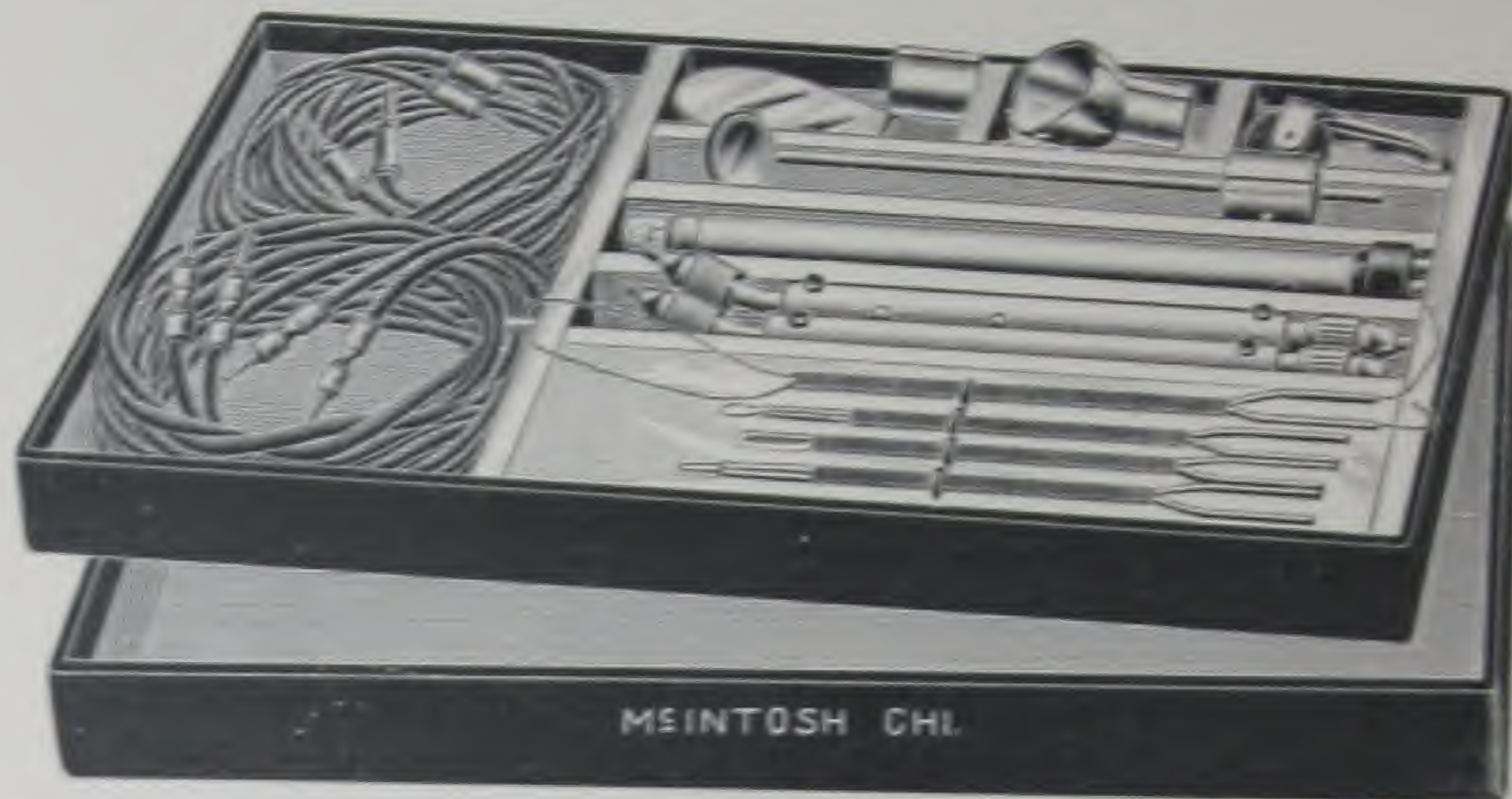
Price, \$10.00

Therapeutist's Assortment, No. 5



Price, \$15.00

Perfection Cautery-Illuminator Set, No. 6

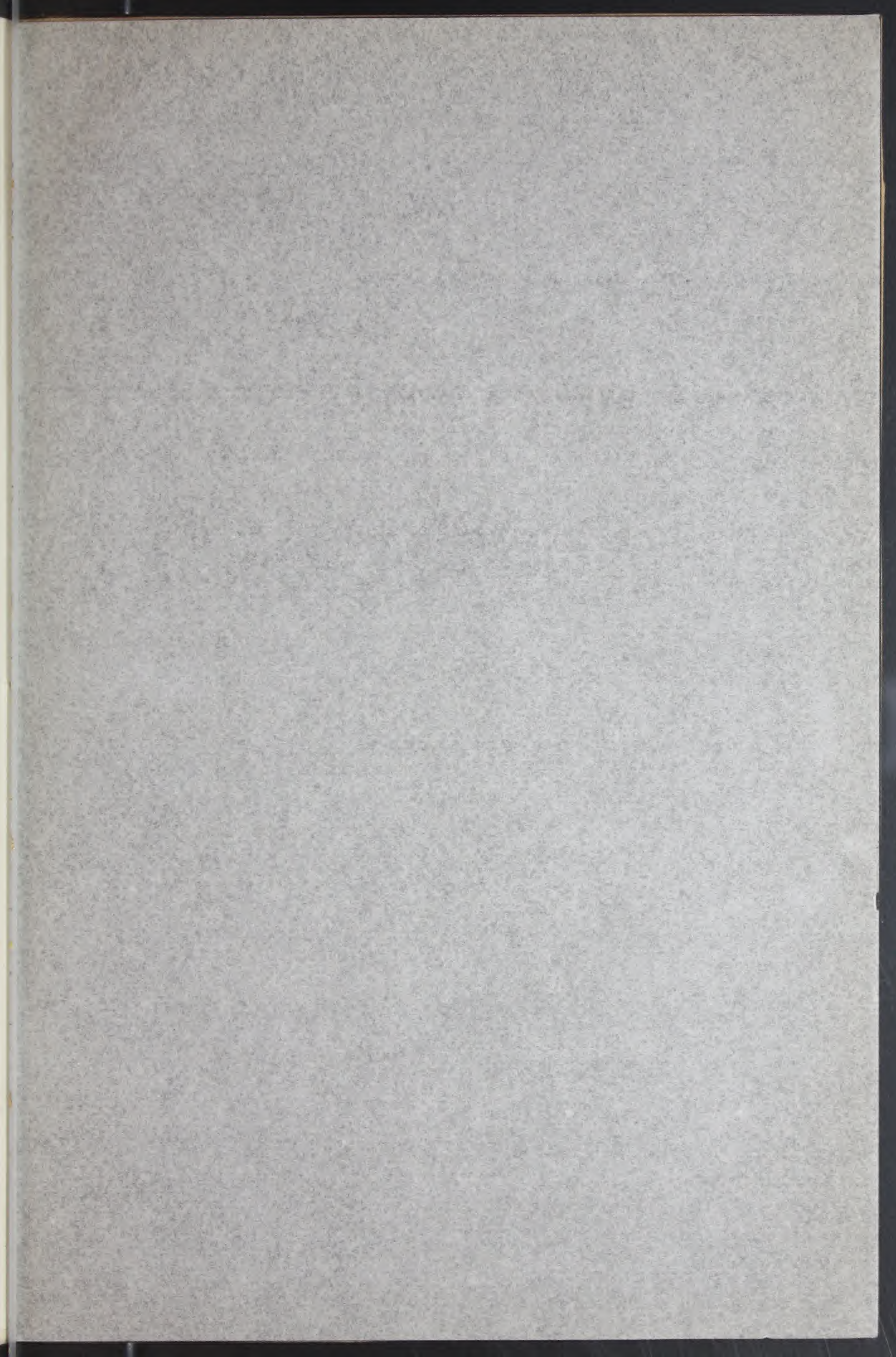


Price, \$10.00

Climax Cautery-Illuminator Set, No. 7



Price, \$5.00





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